

## OPIHI (Our Project in Hawaii's Intertidal) surveys:

There are two types of data sets generated by our project: species inventories and quantitative counts of key organisms. The species inventories are a compilation of data collected by Chela Zabin in 2001 and by Zabin with the assistance of Erin Baumgartner's 9<sup>th</sup> grade Marine Science class at the Education Laboratory School in 2003, 2004 and 2005, through a National Science Foundation Graduate Teaching Fellowship. Each site was visited only once each year: by 50 students in 2003 and by 25 students in 2004 and 2005. Searches were haphazard and lasted for about two hours during daytime low spring tides. Surveys in 2001 were made in the summer and were cursory, focused on invertebrates, and did not involve collections. ELS students worked mid-February through mid-May and were assisted in collection and identification by graduate students from the University of Hawaii's Botany and Zoology departments and by taxonomists from the Bernice P. Bishop Museum. Collection tools included nets, buckets, tongs, and chisels. Other than the use of the chisel for removing animals cemented to the substrate, we did not do destructive sampling. While these surveys were more thorough than those in 2001, they are by no means complete. We did not survey turf algae or coralline algae, and lacked taxonomic expertise for sponges and tunicates. For the most part we photographed, described and collected sponges and tunicates without attempting to name them, i.e. "clear solitary tunicate." Because of this, we were not able to determine, for example, whether the "yellow sponge" collected in 2003 was the same as the one in 2004. Thus the species list may list separately some taxa that are in fact the same species (and vice versa), and should be viewed as a working, rather than a finalized list. Voucher specimens have been submitted to the Bishop Museum. In 2005, due to lack of resources and time, we did not collect sponges, tunicates or worms. Therefore, these surveys really represent only an initial look at the biodiversity of Oahu's intertidal zone. Species lists will also be posted on our website, [www.intertidalthawaii.org](http://www.intertidalthawaii.org), where they will be updated as work continues. We appreciate suggestions and additions to the lists. The survey data are in two forms: an overall species list which includes locations and dates and eight site-specific lists for the sites surveyed with ELS students.

Assistance with species identifications was provided by: Erin Baumgartner (fish), Ross Langston (fish), Lisa Privatera (fish), Dave Spafford (algae), Dawn Adams (algae), Heather Spalding (algae), Cheryl Squair (algae), Megan Dailer (algae), Pakki Reath (polychaetes), Anuschka Faucci (vermetids and other molluscs), Regina Kawamoto (molluscs), Scott Godwin (crabs), Kim Andrews (cnidarians), Joanna Philipoff (echinoderms), Tamar Saturen (echinoderms), Chela Zabin (invertebrates).

Quantitative counts of key organisms were made at five sites on Oahu and one site on Maui in 2005. Two Oahu sites were also surveyed in 2004. The following techniques were used at most of the sites: point-intercept along a transect line, point-intercept quadrats (25 points per quadrat) and percent cover visual estimates (either by # of subsquares within a quadrat or over the whole quadrat). Only the top organism was counted per point and the percent cover data include only the upper level cover. At two sites, Sand Island and Kahana Bay, species under or on the bottom of cobbles were also enumerated. Transect lines were randomly or haphazardly placed, but points/quadrats

along the lines were regularly spaced with the intention of capturing zonation patterns. Lines ran from the water's edge (the 0 m mark) to the top of the littorine zone. Thus, transect length varied with the site. Classes involved were: Mari Taira's Marine Science class at Farrington High School (sites: Diamond Head, Sand Island and Barber's Point); Baumgartner's Marine Science class at Education Laboratory School (sites: Diamond Head and Kahana Bay, in 2004 and 2005); members of Brett Kewish's 7<sup>th</sup> grade Science class at Kahuku Middle School (Kahuku Point/Turtle Bay); and members of Diane Bank's 7<sup>th</sup> grade Science class at Kalama Intermediate School, Makawao (site: Waipuilani Beach). Students worked in groups of 3-4 per transect line and were generally assisted by 1 adult per line.

These data have been entered as separate spreadsheets by site and data collection type, i.e. "SandIslandrocks" are the data collected at Sand Island by the rock-turning technique, "points" are the percent cover data collected by counting points and "percov" are the data collected by visual estimation of percent cover. We have abbreviated all species names as the first four letters of genus and species, where IDs could be made confidently to species level (i.e., Ophierin = *Ophiocoma erinaceus*). Some organisms were recorded just to genera and these are noted that way in the spread sheet i.e., "*Dictyota*." Organisms that could not be readily identified in the field were recorded as "other crabs", etc.

Despite our best attempts, not all of the data were collected perfectly. Farrington High School students recorded percent cover as number of squares and there are some rounding errors that result in totals slightly higher or lower than 100 percent. Occasionally, rather than a total of 25 points, students from all the schools recorded 24, or had quadrats that totaled to 90 percent rather than 100, or did not record according to protocol, i.e. "sea urchin" instead of a species name. We corrected such errors where we could do so with confidence. Where we could not, if total counts were not far off, we included them as is. Where problems were too great, we omitted data. Data may also be missing from transect lines where conditions (usually rising tides) prevented collection.